

CLAIMS

What is claimed is:

- 5 1. A child seat restraining device comprising:
- a stationary base having a bottom side, a top side, and a securing mechanism wherein said stationary base is securable against a vehicle seat,
- a mobile platform movably attached to said base wherein said mobile platform is selectively movable in a plane substantially parallel with respect to said stationary base
- 10 between a first ready position and a second loading position,
- a locking mechanism for releasably locking said mobile platform into the ready position, and
- a child seat securing apparatus wherein a child seat can be removably secured to said mobile platform,
- 15 wherein said mobile platform can be displaced laterally from said base in a direction substantially parallel to a seat back of a vehicle, and wherein said loading position is closer to a vehicle door than said ready position when said device is installed substantially in the center of a vehicle seat.
- 20 2. The child seat restraining device according to claim 1, wherein said securing mechanism comprises a vehicle seat belt receiving member configured to receive a portion of a vehicle seat belt to secure said stationary base to a vehicle seat.

3. The child seat restraining device according to claim 1, wherein said securing mechanism comprises base mounting tethers mounted to said stationary base for engaging anchors mounted in a vehicle.

5 4. The child seat restraining device according to claim 1, wherein said mobile platform is integral with a child seat base.

10 5. The child seat restraining device according to claim 1, wherein said child seat securing apparatus comprises a securing belt mounted to said mobile platform for securing a child seat to said mobile platform.

15 6. The child seat restraining device according to claim 1, wherein said child seat securing apparatus comprises anchors on said mobile platform for engaging child seat tethers on a child seat.

7. The child seat restraining device according to claim 1, wherein the bottom side of said stationary base comprises a non-slip surface for reducing slippage between said stationary base and a surface of a vehicle seat.

20 8. The child seat restraining device according to claim 1, wherein said mobile platform is slidably mounted on said stationary base.

25 9. The child seat restraining device according to claim 8, wherein said mobile platform is mounted to said stationary base via extension rails, and wherein at least one extension rail member is fixedly mounted to said stationary base and at least one extension rail member is fixedly mounted to said mobile platform, said extension rail members

engaging one another wherein said mobile platform is laterally movable with respect to said stationary base.

10. The child seat restraining device according to claim 8, further comprising
5 support wheels mounted to said mobile platform and extending toward a vehicle seat when said device is mounted on such a seat, wherein a portion of the weight of said mobile platform and any load bearing upon said mobile platform is supported by such a vehicle seat via said wheels.

10 11. The child seat restraining device according to claim 10, wherein said stationary base further comprises grooves cut in alignment with said wheels to allow said wheels to contact such a vehicle seat through a range of positions of said mobile platform between the ready position and the loading position.

15 12. The child seat restraining device according to claim 1, wherein said mobile platform further comprises a handle for manipulation of said mobile platform.

13. The child seat restraining device according to claim 1, wherein said stationary base further comprises a security rail extending from said base and adapted to
20 engage a portion of said mobile platform when said mobile platform is in the ready position to further prevent relative motion between said mobile platform and said stationary base.

14. The child seat restraining device according to claim 1, wherein said
25 stationary base further comprises an integral lip configuration which overlaps a portion

of said mobile platform to reduce relative vertical displacement between said stationary base and said mobile platform.

15. The child seat restraining device according to claim 1, wherein said mobile platform is mounted to said stationary base via extension rails, and wherein at least one extension rail member is fixedly mounted to said stationary base and at least one extension rail member is fixedly mounted to said mobile platform, said extension rail members engaging one another wherein said mobile platform is laterally movable with respect to said stationary base, and

10 further comprising support wheels mounted to said mobile platform and extending toward a vehicle seat when said device is mounted on such a seat, wherein said stationary base further comprises grooves cut in alignment with said wheels to allow said wheels to contact such a vehicle seat through a range of positions of said mobile platform between the ready position and the loading position, wherein a portion of the weight of said mobile platform and any load bearing upon said mobile platform is supported by such a vehicle seat via said wheels, and

15 wherein said stationary base further comprises a security rail extending from said base and adapted to engage a portion of said mobile platform when said mobile platform is in the ready position to further prevent relative motion between said mobile platform and said stationary base.

16. The child seat restraining device according to claim 1, wherein said mobile platform is mounted to said stationary base in a manner which allows for rotational movement between said mobile platform and said stationary base.

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17. The child seat restraining device according to claim 16, wherein said mobile platform is mounted to said stationary base via at least one rotating arm, said arm having at least two segments which are pivotally connected with respect to each other at inner ends, one of said segments being pivotally connected at an outer end to said mobile platform or a mounting thereon, the other of said segments being pivotally connected at an outer end to said stationary base or a mounting thereon, wherein said mobile platform is rotatably movable and laterally movable with respect to said stationary base.

18. The child seat restraining device according to claim 17, wherein said mobile platform is mounted to said stationary base via at least two rotating arms, each of said arms having at least two segments which are pivotally connected with respect to each other at inner ends, one of said segments being pivotally connected at an outer end to said mobile platform or a mounting thereon, the other of said segments being pivotally connected at an outer end to said stationary base or a mounting thereon, wherein said mobile platform is rotatably movable and laterally movable with respect to said stationary base.

19. A child seat restraining device comprising:

a stationary base having a bottom side, a top side, and a securing mechanism wherein said stationary base is securable against a vehicle seat,

a middle platform movably mounted above said stationary base,

an upper platform movably mounted above said middle platform and comprising a child seat securing apparatus wherein a child seat can be removably secured to said upper platform,

a first locking mechanism for releasably locking at least one of said middle platform and said upper platform with respect to said stationary base,

wherein one of said middle platform and said upper platform is a slidably mounted mobile platform wherein said mobile platform is selectively movable in a plane substantially parallel with respect to said stationary base between a first ready position and a second loading position,

5 wherein the other of said middle platform and said upper platform is a rotatably mounted rotating platform wherein said rotating platform is rotatable with respect to said stationary base, and

10 wherein said mobile platform can be displaced laterally from said base in a direction substantially parallel to a seat back of a vehicle, wherein said loading position is closer to a vehicle door than said ready position when said device is installed substantially in the center of a vehicle seat, and wherein said rotating platform can be rotated with respect to said stationary base to rotate a child seat attached to said upper platform into a desired position for convenience when loading, yet into a rear-facing or front-facing position when the mobile platform is in the ready position.

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20. The child seat restraining device according to claim 19, wherein said rotating platform is rotatable when said mobile platform is in the ready position.

20 21. The child seat restraining device according to claim 19, wherein said rotating platform is rotatable when said mobile platform is in the loading position.

22. The child seat restraining device according to claim 21, further wherein said rotating platform is rotatable when said mobile platform is in the ready position.

23. The child seat restraining device according to claim 19, wherein said first locking mechanism is adapted to releasably lock both said mobile platform and said rotating platform with respect to said stationary base.

5 24. The child seat restraining device according to claim 19, wherein said first locking mechanism is adapted to releasably lock only one of said mobile platform or said rotating platform with respect to said stationary base, and further comprising a second locking mechanism for releasably locking said rotating platform with respect to said mobile platform independently of said first locking mechanism.

10 25. The child seat restraining device according to claim 19, wherein said stationary platform further comprises a security rail adapted to engage at least one of said mobile platform and said rotating platform to secure and reduce relative movement therebetween when engaged.

15 26. The child seat restraining device according to claim 25, wherein said security rail is adapted to engage both said mobile platform and said rotating platform.

20 27. The child seat restraining device according to claim 19, wherein said device further comprises a handle for manipulation on at least one of said mobile platform and said rotating platform.

25 28. The child seat restraining device according to claim 19, wherein the bottom side of said stationary base comprises a non-slip surface for reducing slippage between said stationary base and a surface of a vehicle seat.

29. The child seat restraining device according to claim 19, wherein said securing mechanism comprises a vehicle seat belt receiving member configured to receive a portion of a vehicle seat belt to secure said stationary base to a vehicle seat.

5 30. The child seat restraining device according to claim 19, wherein said securing mechanism comprises base mounting tethers mounted to said stationary base for engaging anchors mounted in a vehicle.

10 31. The child seat restraining device according to claim 19, wherein said upper platform is integral with a child seat base.

15 32. The child seat restraining device according to claim 19, wherein said child seat securing apparatus comprises a securing belt mounted to said upper platform for securing a child seat to said upper platform.

33. The child seat restraining device according to claim 19, wherein said child seat securing apparatus comprises anchors on said upper platform for engaging child seat tethers on a child seat.

20 34. The child seat restraining device according to claim 19, wherein said middle platform is said mobile platform, and wherein said upper platform is said rotating platform.

25 35. The child seat restraining device according to claim 34, wherein said mobile platform is mounted to said stationary base via extension rails, and wherein at least one extension rail member is fixedly mounted to said stationary base and at least one

extension rail member is fixedly mounted to said mobile platform, said extension rail members engaging one another wherein said mobile platform is laterally movable with respect to said stationary base.

5 36. The child seat restraining device according to claim 34, further comprising support wheels mounted to said mobile platform and extending toward a vehicle seat when said device is mounted on such a seat, wherein a portion of the weight of said mobile platform and any load bearing upon said mobile platform is supported by such a vehicle seat via said wheels.

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 37. The child seat restraining device according to claim 36, wherein said stationary base further comprises grooves cut in alignment with said wheels to allow said wheels to contact such a vehicle seat through a range of positions of said mobile platform between the ready position and the loading position.

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 38. The child seat restraining device according to claim 34, wherein said stationary base further comprises an integral lip configuration which overlaps a portion of said mobile platform to reduce relative vertical displacement between said stationary base and said mobile platform.

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 39. The child seat restraining device according to claim 34, wherein said mobile platform further comprises an integral lip configuration which forms a circular cavity having an interface surface within the mobile platform and which overlaps a portion of a base pedestal of said rotating platform to reduce relative vertical displacement between said mobile platform and said rotating platform.

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40. The child seat restraining device according to claim 34, further comprising rotational bearings between said rotating platform and said mobile platform, wherein said bearings facilitate smooth rotation of said rotating platform with respect to said mobile platform.

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41. The child seat restraining device according to claim 39, wherein said stationary base further comprises an integral lip configuration which overlaps a portion of said mobile platform to reduce relative vertical displacement between said stationary base and said mobile platform.

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42. The child seat restraining device according to claim 19, wherein said middle platform is said rotating platform, and wherein said upper platform is said mobile platform.

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43. The child seat restraining device according to claim 42, wherein said mobile platform is mounted to said rotating platform via extension rails, and wherein at least one extension rail member is fixedly mounted to said rotating platform and at least one extension rail member is fixedly mounted to said mobile platform, said extension rail members engaging one another wherein said mobile platform is laterally movable with respect to said rotating platform.

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44. The child seat restraining device according to claim 42, further comprising support wheels mounted to said mobile platform and extending toward a vehicle seat when said device is mounted on such a seat, wherein a portion of the weight of said mobile platform and any load bearing upon said mobile platform is supported by such a vehicle seat via said wheels.

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45. The child seat restraining device according to claim 42, wherein said rotating platform further comprises an integral lip configuration which overlaps a portion of said mobile platform to reduce relative vertical displacement between said rotating platform and said mobile platform.

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46. The child seat restraining device according to claim 42, wherein said stationary base further comprises an integral lip configuration which forms a circular cavity having an interface surface within the stationary base and which overlaps a portion of a base pedestal of said rotating platform to reduce relative vertical displacement between said stationary base and said rotating platform.

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47. The child seat restraining device according to claim 42, further comprising rotational bearings between said rotating platform and said stationary base, wherein said bearings facilitate smooth rotation of said rotating platform with respect to said stationary base.

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48. The child seat restraining device according to claim 46, wherein said rotating platform further comprises an integral lip configuration which overlaps a portion of said mobile platform to reduce relative vertical displacement between said rotating platform and said mobile platform.

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49. The child seat restraining device according to claim 19, wherein said rotating platform can be rotated in a manner such that a rear-facing side of a child seat which faces a seat back when in a locked position can be rotated to face toward a loading door of a vehicle when said mobile platform is in the loading position.

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50. The child seat restraining device according to claim 19, wherein said rotating platform can be rotated in a manner such that a rear-facing side of a child seat which faces a seat back when in a locked position can be rotated to face away from a loading door of a vehicle when said mobile platform is in the loading position.

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51. The child seat restraining device according to claim 34, wherein said rotating platform can be selectively rotated and positioned into either of two loading positions, a first one of said loading positions configured with a rear-facing end of a child seat which faces a seat back when in a locked position rotated to face away from a loading door of a vehicle when said mobile platform is in the loading position, and a second one of said loading positions configured with the rear-facing end of a child seat which faces a seat back when in a locked position rotated to face toward such a loading door of a vehicle when said mobile platform is in the loading position.

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52. A method for manufacturing a child seat restraining device comprising the steps of:

providing a stationary base having a bottom side and a top side,

providing a securing mechanism to enable the stationary base to be secured against a vehicle seat,

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providing a mobile platform movably attached to said device with respect to the base wherein the mobile platform is selectively movable in a plane substantially parallel with respect to said stationary base between a first ready position and a second loading position,

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providing a locking mechanism for releasably locking said mobile platform into the ready position, and

providing a child seat securing apparatus wherein a child seat can be removably secured to said device,

5 wherein said mobile platform can be displaced laterally from said base in a direction substantially parallel to a seat back of a vehicle, and wherein said loading position is closer to a vehicle door than said ready position when said device is installed substantially in the center of a vehicle seat.

53. The method for manufacturing a child seat restraining device according to claim 52, further comprising the step of:
10 rotatably mounting a rotating platform above the mobile platform, and wherein the step of providing a child seat securing apparatus is performed by providing the child seat securing apparatus on the rotating platform.

54. The method for manufacturing a child seat restraining device according to claim 53, wherein the rotating platform is integral with a child seating member.
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55. The method for manufacturing a child seat restraining device according to claim 52, further comprising the step of:
20 rotatably mounting a rotating platform between the mobile platform and the stationary base, wherein the rotating platform is rotatable with respect to the stationary base, and

wherein the step of providing a child seat securing apparatus is performed by providing the child seat securing apparatus on the mobile platform.

56. The method for manufacturing a child seat restraining device according to claim 52, wherein the mobile platform is integral with a child seating member, and wherein the child seat securing apparatus comprises a mounting apparatus for mounting the mobile platform to the device.

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57. A child seat restraining device comprising:

a stationary base having a bottom side, a top side, and a securing mechanism wherein said stationary base is securable against a vehicle seat,

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a mobile platform attached to said device wherein said mobile platform is selectively movable with respect to said stationary base in a plane substantially parallel with respect to said stationary base between a first ready position and a second loading position,

a locking mechanism for releasably locking said mobile platform into the ready position, and

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wherein said mobile platform can be displaced laterally with respect to said base from the ready position in a direction substantially parallel to a seat back of a vehicle into which said device is installed without requiring any substantial displacement of said mobile platform in a forward direction with respect to the seat back of the vehicle, and wherein the loading position is closer to a vehicle door than the ready position when said device is installed substantially in the center of a vehicle seat.

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58. The child seat restraining device according to claim 57, wherein said mobile platform is integral with a child seating member.

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59. The child seat restraining device according to claim 58, wherein said mobile platform is removably attached to said device.

60. The child seat restraining device according to claim 58, wherein said mobile platform is mounted to said stationary base via extension rails, and wherein at least one extension rail member is fixedly mounted to said stationary base and at least one extension rail member is fixedly mounted to said mobile platform, said extension rail members engaging one another wherein said mobile platform is laterally movable with respect to said stationary base.

61. The child seat restraining device according to claim 58, wherein said stationary base further comprises an integral lip configuration which overlaps a portion of said mobile platform to reduce relative vertical displacement between said stationary base and said mobile platform.

62. The child seat restraining device according to claim 57, wherein said device comprises a middle platform movably mounted above said stationary base, and an upper platform movably mounted above said middle platform, wherein one of said middle platform and said upper platform is said mobile platform, and the other of said middle platform and said upper platform is a rotating platform, and wherein said upper platform is integral with a child seating member.

63. The child seat restraining device according to claim 62, wherein said upper platform is removably mounted to said device.

64. The child seat restraining device according to claim 62, wherein said upper platform is said rotating platform and said middle platform is said mobile platform.

65. The child seat restraining device according to claim 62, wherein said upper platform is said mobile platform and said middle platform is said rotating platform.

66. The child seat restraining device according to claim 64, wherein said mobile platform further comprises an integral lip configuration which forms a circular cavity having an interface surface within the mobile platform and which overlaps a portion of a base pedestal of said rotating platform to reduce relative vertical displacement between said mobile platform and said rotating platform.

67. The child seat restraining device according to claim 65, wherein said stationary base further comprises an integral lip configuration which forms a circular cavity having an interface surface within the stationary base and which overlaps a portion of a base pedestal of said rotating platform to reduce relative vertical displacement between said stationary base and said rotating platform.

68. The child seat restraining device according to claim 64, wherein said rotating platform can be selectively rotated and positioned into either of two loading positions, a first one of said loading positions configured with a rear-facing end of said child seating member which faces a seat back when in a locked position rotated to face away from a loading door of a vehicle when said mobile platform is in the loading position, and a second one of said loading positions configured with the rear-facing end of said child seating member which faces a seat back when in a locked position rotated to face toward such a loading door of a vehicle when said mobile platform is in the loading position.